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L1 1 S SUMPTER S?/AU AND 1990/PY
L2 1942 S CAPILLARY(3A)COLUMN(5A)COAT?
L3 45 S L2 AND COAT?(3A)(EFFICIE? OR COVER?)
L4 1 S L2 AND HYDROTHERM?
L5 44 S L3-4 NOT PY>1999

=> d bib,ab 1-44

L5 ANSWER 4 OF 44 CA COPYRIGHT 2003 ACS on STN
AN 120:157943 CA
TI Simple method for the preparation of highly **efficient** polymer-**coated** **capillary** electrophoresis **columns**
AU Malik, Abdul; Zhao, Zhongxi; Lee, Milton L.
CS Dep. Chem., Brigham Young Univ., Provo, UT, 84602-4672, USA
SO Journal of Microcolumn Separations (1993), 5(2), 119-25
AB A simple method for the prepn. of polymer-**coated** fused silica **capillary** **columns** for electrophoresis is presented. The static coating technique used in GC and supercrit. fluid chromatog. can be conveniently utilized for the prepn. of highly efficient capillary electrophoresis columns. In this method, the coating soln. contains appropriate proportions of three ingredients: a polymer, a surface derivatization reagent, and a crosslinking reagent dissolved in a suitable low-boiling solvent. After coating, the column is subjected to heat treatment to immobilize the polymer film. Simplicity, rapidity, high column efficiency, batch-to-batch and run-to-run reproducibility, and long column life-time are advantageous features of the new method. Column efficiencies of as high as 1.2 million theor. plates were achieved for cytochrome c on a 96-cm-long Ucon 75 H-90,000 coated column. Efficient electrophoretic sepn. of five cytochrome c proteins was achieved on a Superox 4 coated column. The possibility of capillary electrophoresis sepn. of histones on the new columns was also explored.

L5 ANSWER 5 OF 44 CA COPYRIGHT 2003 ACS on STN
AN 118:182441 CA
TI Highly efficient and inert stainless steel GC columns: a durable, flexible alternative to fused silica
AU Schuyler, Andrew; Stauffer, Joseph W.; Loope, Christina E.; Vargo, Christine R.
CS RESTEK Corp., Bellefonte, PA, 16823-8812, USA
SO Process Control and Quality (1992), 3(1-4), 167-71
AB Stainless steel gas chromatog. columns have been developed that offer the performance of state-of-the-art fused silica GC columns. However, columns made of stainless steel tubing are not prone to breakage like those made of polyimide-coated fused silica tubing are. The new stainless steel columns can be made into std. length GC columns, yet can be wound into much smaller coil radii than those made with fused silica tubing without the risk of structural or chromatog. degrdn. These stainless steel columns have proven very durable - even after extensive thermal stressing, and may be installed in existing equipment without modification. The interior of the stainless steel has been deactivated with a micrometer layer of silica which, in turn, is further deactivated with a thin polymeric layer. The resulting deactivated stainless steel tubing, known as SILCOSTEEL, may be coated with conventional stationary phases such as Me, Ph-Me, cyanopropyl, and trifluoropropyl silicones as well as polar phases such as polyethylene glycol. The resulting columns (the MXTTM series) exhibit the inertness and

efficiency of current polyimide-**coated** fused silica **capillary columns**. Chromatograms demonstrate some of the applications that the MXTTM series GC columns are capable of performing. Applications include high-temp. (445°) SIM DIST chromatog., environmental testing, and process gas chromatog. (BTEX anal.). These stainless steel columns offer chromatog. rivaling that of state of the art fused silica columns. However, being made of stainless steel, SILCOSTEEL GC columns are a high-temp., more durable alternative to polyimide-coated fused silica GC columns.

L5 ANSWER 8 OF 44 CA COPYRIGHT 2003 ACS on STN
AN 115:41002 CA
TI Rapid preparation of **capillary columns** by superdynamic **coating**
AU Wan, Hong; Dong, Yunyu
CS Lanzhou Inst. Chem. Phys., Acad. Sin., Lanzhou, Peop. Rep. China
SO Fenxi Ceshi Tongbao (1990), 9(6), 54-60
LA Chinese
AB Several kinds of gas chromatog. capillary columns of apolar stationary phase with 3000-4500 theor. plates/m and 65-85% **coating efficiency** were prepd. by superdynamic coating. The relations among coating pressure, concn. of coating soln., and capacity factors; as well as their reproducibility and film thickness uniformity were studied. The data on some prepd. columns were also given.

L5 ANSWER 9 OF 44 CA COPYRIGHT 2003 ACS on STN
AN 114:156353 CA
TI Studies on rapid preparation of **capillary columns** by superdynamic **coating** method
AU Wan, Hong; Dong, Yunyu
CS Lanzhou Inst. Chem. Phys., Acad. Sin., Lanzhou, 730000, Peop. Rep. China
SO Sepu (1991), 9(1), 10-14
LA Chinese
AB The **capillary columns coated** with apolar stationary phases (e.g. siloxanes), possessing column efficiency of about 3000-4500 plates/m and **coating efficiency** of 65-85%, have been prepd. rapidly by superdynamic coating method. The effects of coating pressure and the concn. of coating soln. on capacity factor were studied. The reproducibility and the uniformity of film thickness were investigated. Some results of conventional capillary columns and wide bore thick film columns prepd. by this method are given.

L5 ANSWER 12 OF 44 CA COPYRIGHT 2003 ACS on STN
AN 113:238570 CA
TI Static coating of 5 to 50 μm I.D. capillary columns for open tubular column chromatography
AU Sumpter, S. R.; Woolley, C. L.; Huang, E. C.; Markides, K. E.; Lee, M. L.
CS Dep. Chem., Brigham Young Univ., Provo, UT, 84602, USA
SO Journal of Chromatography (1990), 517, 503-19
AB Dichlorofluoromethane, CCl3F, and Me4Si were used in the static **coating** of small diam. **capillary columns** (5 to 50 μm I.D.) to obtain highly efficient columns for gas and supercrit. fluid chromatog. Capillary columns of 5-, 10-, 25-, and 50-μm I.D. were coated with stationary phase films of SE-33, SE-54, OV-215, 50% octyl, 45% phenoxypolyethyl ether, 50% liq. crystal, 25% biphenyl, 50% pentafluorophenyl, and 50% cyanopropyl polysiloxane stationary phases. Resultant evaluations of these columns in gas chromatog. gave ~9000, 66000, 45000, and 19000 plates m-1, resp., for the different internal diams. Important parameters which affect **coating efficiency** are identified and discussed in detail.

L5 ANSWER 14 OF 44 CA COPYRIGHT 2003 ACS on STN

AN 108:179311 CA
TI Static coating of phenyl and biphenyl polysiloxane stationary phases on small-diameter capillary columns
AU Woolley, C. L.; Tarbet, B. J.; Markides, K. E.; Bradshaw, J. S.; Lee, M. L.; Bartle, K. D.
CS Dep. Chem., Brigham Young Univ., Provo, UT, 84602, USA
SO HRC & CC, Journal of High Resolution Chromatography and Chromatography Communications (1988), 11(1), 113-18
AB Static coatings of Ph and biphenyl polysiloxane stationary phases on 50 μm inner diam. open tubular capillaries was studied. The influence of coating solvents and coating temps. on the viscosities and surface tensions of the polymer stationary phases and their coating solns. was detd. A measure of the Rayleigh instability paralleled the obsd. **coating efficiencies**. The biphenyl polysiloxane coated column was used for coal sample anal. for polycyclic arom. hydrocarbons.

L5 ANSWER 15 OF 44 CA COPYRIGHT 2003 ACS on STN
AN 106:60416 CA
TI Static **coating** method for flexible glass **capillary column**
AU Gao, Yifei; Zhang, Guiqin; Yang, Jipo
CS Chanchun Inst. Appl. Chem., Acad. Sin., Changchun, Peop. Rep. China
SO Sepu (1986), 4(5), 310-12
LA Chinese
AB The static coating technique has been commonly accepted as the **coating** method for **capillary columns**. A simple **efficient** static **coating** device was recommended in this paper.

L5 ANSWER 16 OF 44 CA COPYRIGHT 2003 ACS on STN
AN 105:202478 CA
TI Preparation of thermostable cyanosilicone capillary columns
AU Eddib, Omar; Nickless, Graham; Cooke, Michael
CS Quality Cont. Lab., Minist. Health, Tripoli, Libya
SO Journal of Chromatography (1986), 368(2), 370-3
AB A simple method is described for prepg. thermally stable and highly **efficient capillary columns coated** with highly polar cyanosilicone phases for gas chromatog. The cyanosilicone phases used were OV-225 and Silar 10C. These columns are particularly useful for the sepn. of fatty acid Me esters where isomeric monosatn. is present. A flame ionization detector and H carrier gas were used.

L5 ANSWER 19 OF 44 CA COPYRIGHT 2003 ACS on STN
AN 104:236559 CA
TI Characterization of fused-silica capillary tubing by contact angle measurements
AU Ogden, M. W.; McNair, H. M.
CS Dep. Chem., Virginia Polytech. Inst. and State Univ., Blacksburg, VA, 24061, USA
SO Journal of Chromatography (1986), 354, 7-18
AB The capillary rise method was used to obtain angle measurements on untreated fused silica and fused silica treated with a variety of deactivating reagents. The contact angle data were used in the construction of Zisman plots which allowed characterization of the wettability of the surfaces by their crit. surface energies. The wettability of raw fused silica was found to be widely variable which adversely affects attempts to fully deactivate the surface. **Hydrothermal** treatment of the fused silica with HNO3 was found to be adequate for cleaning and hydroxylating the surface so as to allow complete deactivation. Simple silylating reagents, cyclic siloxanes, and polysiloxanes covering a wide range of polarity were used and evaluated as

deactivating reagents.

L5 ANSWER 21 OF 44 CA COPYRIGHT 2003 ACS on STN
AN 104:161258 CA
TI Free release static **coating** of **capillary columns**, theoretical considerations and practice
AU Xu, B. J.; Vermeulen, N. P. E.
CS Dep. Pharm. Sci., Beijing Med. Coll., Beijing, Peop. Rep. China
SO Proc. Int. Symp. Capillary Chromatogr., 6th (1985), 82-91. Editor(s): Sandra, P. Publisher: Huethig, Heidelberg, Fed. Rep. Ger.
AB A new, alternative free release static coating procedure for capillary gas chromatog. is proposed in which the solvent vapor is released freely out of the column instead of under vacuum, as in conventional static coating. Several important factors involved in static coating are discussed. The new procedure was evaluated practically by coating several columns (wall-coated open-tubular; internal diam. 0.1-0.4 mm) with various stationary phases dissolved in different solvent mixts. Coating was found to be rapid and the speed relatively const., and **coating efficiency** reproducibly high.

L5 ANSWER 23 OF 44 CA COPYRIGHT 2003 ACS on STN
AN 103:205088 CA
TI Preparation and evaluation of quartz capillary columns with polar stationary phases
AU Sun, Jiahe; Lin, Ruifang
CS Res. Inst. Pet. Process., Beijing, Peop. Rep. China
SO Sepu (1985), 2(2), 65-9
LA Chinese
AB Quartz **capillary columns** are 1st **coated** with pure SiO2 powder by passing a SiO2 suspension in a mixt. of CHCl3 and 1,4-dioxane. After drying a polar stationary phase, such as OV-275 or OV-225, is coated by the dynamic method. Grob's testing mixt. is used for evaluation. The SiO2 layer coated on the inner wall of the quartz capillary improves the wettability and deactivates its surface. **Coating efficiency** of the columns thus prepd. is >70%. They are inert and thermally stable. Several examples of application are illustrated.

L5 ANSWER 26 OF 44 CA COPYRIGHT 2003 ACS on STN
AN 102:39208 CA
TI Characterization of OV-1/FFAP-mixture **coated** glass **capillary columns** used for the separation of free fatty acids
AU Poerschmann, J.; Welsch, T.; Engewald, W.; Vigh, G.
CS Inst. Tech. Microbiol., Berlin, 1017, Ger. Dem. Rep.
SO HRC & CC, Journal of High Resolution Chromatography and Chromatography Communications (1984), 7(9), 509-14
AB As an alternative to acid pretreated UCON and FFAP capillaries for the anal. of wide-boiling free fatty acid mixts., OV-1:FFAP phase mixts. were used on high-temp. silylated inert glass capillary columns. The HETP-carrier gas velocity curves, peak asymmetry factors, **coating efficiency**, gas phase and stationary phase contributions to the mass transfer resistance were detd. for various OV-1:FFAP ratios. Mixed-phase capillaries showed optimum performance at a 2:1 OV-1:FFAP ratio. The thermal and long-term stability of OV-1-stabilized FFAP columns surpassed those of the UCON and pure FFAP ref. column used.

L5 ANSWER 29 OF 44 CA COPYRIGHT 2003 ACS on STN
AN 100:145493 CA
TI Crosslinked methylphenylsilicones as stationary phases for capillary gas chromatography

AU Buijten, J.; Blomberg, L.; Markides, K.; Waennman, T.
CS Arrhenius Lab., Univ. Stockholm, Stockholm, S-106 91, Swed.
SO Chromatographia (1982), 16, 183-7
AB Methyl(phenyl)silicones offer useful selectivities when used as stationary phases in gas chromatog. (GC). Such phases have, however, hitherto been of restricted importance in capillary GC due to the lack of phases having a viscosity high enough to ensure stationary phase film stability. To utilize fully the possibilities of a methyl(phenyl)silicone capillary column, it must also possess high efficiency and a high degree of deactivation. The prepn. of soda-glass **capillary columns coated** with in situ cured methyl(phenyl) and methyl(tolyl)-silicones is described. Vulcanization was made possible by the introduction of some vinyl substitution in the gum to be cured: tolyl-contg. gums can be cured without the presence of vinyl groups. In addn., fused silica **capillary columns coated** with OV-1701 were prepd. The columns show a **coating efficiency** of >80%, a thermal stability ≤320°, an a high degree of deactivation. Their utility is demonstrated by sepn. of samples contg. polynuclear aroms., antidepressants, and some potent mutagens.

L5 ANSWER 30 OF 44 CA COPYRIGHT 2003 ACS on STN
AN 100:26373 CA
TI Deactivation and coating of non-polar 50-μm I.D. capillary columns
AU Schutjes, C. P. M.; Vermeer, E. A.; Cramers, C. A.
CS Dep. Chem. Eng., Eindhoven Univ. Technol., Eindhoven, 5600 MB, Neth.
SO Journal of Chromatography (1983), 279, 49-57
AB The deactivation and **coating** of 50-μ I.D. **capillary columns** were studied by using borosilicate and fused-silica columns with >105 theor. plates. A device is described for the convenient introduction of fluids by N pressure ≤80 bar. The device permits fluid switching while the working pressure is maintained. Established procedures for leaching and polysiloxane degrdn., which are normally used with 0.25-mm I.D. capillaries, gave low **coating efficiencies** when applied to the 50-μ I.D. columns studied. Modified procedures are described. For borosilicate columns an acceptable level of deactivation was achieved. A slight residual activity towards alcs. and amines could not be prevented. Excellent deactivation was obsd. for the fused-silica columns, even when only 15 pg of polar test compds. where injected.

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